

is enabling of rich-lean cyclic fuel control that raises the levels of gases, such as CO and oxygen, at the catalyst surfaces. Engine control unit (7) may then determine whether the target catalytic converter (10) or (22) is malfunctioning by comparing changes between the first and second temperature characteristics as well as the first and second derivatives which comprise catalyst temperature profiles which may be compared to reference catalytic converters measured during similar steady state conditions representative of the two states.

With respect to cold start quick heating of the catalyst, another feature of the various embodiments of the Applicant's invention is to increase the rate of catalytic heating, particularly during open loop fuel control (although both during open and closed loop fuel control are possible as disclosed), at the earliest time when a catalyst's temperature is sufficient to allow sustainable exothermic reactions at portions of its active surfaces. This may also be used in determining the efficiency of the catalyst.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1, 2, 7-9, 11-16, 18, 20, 29-31, 36, 38-40 and 43-46 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172).
2. Whether claims 24-26 and 28 are unpatentable under 35 U.S.C. § 103(a) over Fujimoto et al. (U.S. Patent 5,591,905) in view of Pelters et al. (U.S. Patent 5,435,172).
3. Whether claims 3-6 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Holl (U.S. Patent 3,785,151).
4. Whether claim 19 is unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Fujimoto et al. (U.S. Patent 5,591,905).
5. Whether claim 27 is unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844) in view of Pelters et al. (U.S. Patent 5,435,172) and Yamashita et al. (U.S. Patent 5,727,383).

6. Whether claims 32 and 33 are unpatentable under 35 U.S.C. § 103(a) over Maus et al. (U.S. Patent 5,610,844), in view of Pelters et al. (U.S. Patent 5,435,172), and further in view of Yamashita et al. (U.S. Patent 5,727,383).
7. Whether claim 50 is anticipated under 35 U.S.C. § 102(b) by Yamashita et al. (U.S. Patent 5,727,383).
8. Whether claim 51 is anticipated under 35 U.S.C. § 102(b) by Pelters et al. (U.S. Patent 5,435,172).

ARGUMENT

As a general matter, none of the cited and applied references presented by the Examiner can anticipate or render obvious any of the pending claims because they fail to disclose, teach, or suggest each and every limitation of the claims. None of the cited and applied references disclose, teach or suggest a method or system that can and does control conditions of “selected individual engine cylinders.” Nor do the Examiner provide any reasoning for modifying the disclosure of the references to do so. In particular, none of the cited and references have the hardware or software capable of controlling the conditions (e.g., amount of fuel or gas concentration) of “selected individual engine cylinders” as stated in the limitations of all of independent claims 1, 20, 24, 28, 29, and 43 (claims 50 and 51 will be discussed below). There are three primary inputs that can be controlled in an engine to achieve controlling the conditions of “**selected engine cylinders**” exhaust gases'; controlling the amount of engine inlet air, controlling the amount of fuel, or controlling the timing or extent of spark to ignite the air and fuel mixture in the engine cylinder. In various embodiments of the present invention, the fuel control system includes one fuel injector per cylinder, i.e., injectors I1, I2, I3 and In, that each have independent control lines I1, I2, I3, and this hardware configuration enables individual cylinder selection such that each injector may be controlled independently and the amount of fuel to “selected individual engine cylinders” may be controlled independently to achieve the various purposes of the present invention (e.g., quick heating or diagnosis of the catalyst). The term “selected” requires an affirmative action of selecting. None of the references disclose, teach or suggest such individual cylinder selection, nor can they. Therefore, the systems disclosed by the